

REMARKS

Claims 16-34 are pending in this application. By this Amendment, claims 1-15 are canceled claims 16-34 are added. No new matter is added by this Amendment. Support for new claims 16-34 may be found in the specification, original claims, and figures. In particular, support for claim 16 is found in original claim 1, support for claims 17-19 are found in original claims 1 and 3-5, support for claims 20, 22, 24 and 26 is found in original claim 2, support for claims 21, 23, 25, 27, 30 and 32 is found in claim 12, support for claim 28 is found in original claims 1 and 2, support claims 31 and 33 is found in claim 13, and support for claim 34 is found in claim 15.

I. Rejection Under 35 U.S.C. §102(b)

Claims 1-15 were rejected under 35 U.S.C. §102(b) over U.S. Patent No. 3,754,214 (Matsumoto).^{*} This rejection is respectfully traversed.

Claims 1-15 are herein canceled. Thus, with respect to the rejection of claims 1-15, this rejection is moot.

Each of independent claims 16-19, 28, 31 and 34 recites a piezoelectric material layer and a ferroelectric material layer clamped together, the ferroelectric material layer having a predetermined direction of polarization.

Matsumoto describes a lock system including two adaptive memory devices, one in the lock and one in the key. These adaptive memory devices each include a pair of polarized materials wherein an input signal is applied and an output signal is induced. The output

^{*} The Office Action actually indicates that claims 1, 2, 3-5, 8-106-7, and 11-15 are rejected. However, Applicant assumes the Office Action is actually referring to all of claims 1-15 and responds accordingly.

signals from the two adaptive memory devices are compared in order to determine whether the two devices have the same "memory" and therefore to open the lock.

At col. 3, lines 23-25 of Matsumoto, the adaptive memory device is described as being ferroelectric, and at col. 3, lines 39-41 of Matsumoto, it is stated that both the ferroelectric and piezoelectric properties are utilized. These materials are "mechanically coupled" which would imply clamping. At col. 4, lines 29-36 of Matsumoto, it is stated that the output signal will have a phase shift of 0° to 180° if the materials are fully polarized.

The above claims are patentable over Matsumoto in that Matsumoto refers to materials being ferroelectric with both ferroelectric and piezoelectric properties. Accordingly, one skilled in the art would understand that the materials would always have to be ferroelectric. This is because Matsumoto refers to a characteristic which is set and retained even if the control signal is removed. See col. 2, line 64-col. 3, line 1, of Matsumoto. Referring to Fig. 1 of Matsumoto, the key 10 does not include any permanent means of providing the required polarization. As discussed in the Request for Reconsideration filed on November 1, 2002, and December 19, 2003, there is no remnant polarization with a piezoelectric material. Accordingly, Matsumoto only discloses materials which are ferroelectric.

Accordingly, Matsumoto fails to anticipate the subject matter of claims 16-34, because Matsumoto fails to teach that one of the materials is not piezoelectric.

Nor does Matsumoto render obvious the present claims because one skilled in the art would not consider using a ferroelectric and piezoelectric material in view of Matsumoto because an additional power source would be required to maintain the polarization in the piezoelectric material, which would lead to serious disadvantages in terms of size, weight and cost of the key. Moreover, should power ever be interrupted to the piezoelectric material, then the polarization may not be the same between the key and lock. Hence, a person skilled

in the art clearly would not be attracted to the idea of using a piezoelectric material for one of the materials. In other words, there would be no motivation to modify Matsumoto to achieve the present claims.

Furthermore, Matsumoto also discloses at col. 4, lines 48-52, that the input signal needs to be less than that required to alter the polarization of the ferroelectric material. However, it is not explicit as to the relationship between the phase of the output signal and the predetermined polarization direction. Matsumoto makes no reference or suggestion to use the feature of predetermining the polarization direction in order to dictate the phase of the output signal as required by claims 16-19, 28 and 31.

For the foregoing reasons, Applicant submits that Matsumoto fails to anticipate and fails to render obvious the subject matter of claims 16-19, 28, 31 and 34, as well as the claims dependent therefrom.

Furthermore, with respect to claims 17-19, Applicant submits that Matsumoto fails to teach or suggest an amplifier, transformer, inverter or comparator. Although Matsumoto compares two output signals, Matsumoto fails to disclose the device per se as a comparator. Accordingly, Applicant submits, for these additional reasons, claims 17-19 are not anticipated by Matsumoto.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 16-34 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:
Amendment Transmittal

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